

What is claimed is:

1. A temperature control apparatus for a heater using an encoder switch that controls an indoor temperature by driving a burner in accordance with a change of an indoor temperature and ventilating heated air indoors, the apparatus comprising:

an encoder switch converting a user's set temperature value into a digital signal of a predetermined number of bits;

a microcomputer for comparing the indoor temperature inputted in real time with the digital set temperature, driving the burner if the indoor temperature is lower than the set temperature by less than a predetermined temperature T_1 , and stopping the driving of the burner if the indoor temperature is high than the set temperature by more than a predetermined temperature T_2 ; and

a display unit for checking and displaying various kinds of error modes occurring while the burner is driven in accordance with a control signal inputted from the microcomputer.

2. The temperature control apparatus as claimed in claim 1, wherein the display unit comprises a temperature display unit for displaying the indoor temperature inputted in real time in accordance with the control signal from the microcomputer;

wherein the microcomputer checks the various kinds of error modes occurring while the burner is driven, and if an error occurs, the microcomputer displays the error mode by characters through the temperature display unit.

3. The temperature control apparatus as claimed in claim 2, further comprising a temperature display selection unit for selectively displaying the indoor temperature displayed through the temperature display by Celsius (C) or Fahrenheit (F).

4. The temperature control apparatus as claimed in claim 1, wherein the display unit comprises an ignition state display unit for displaying an ignition state of the burner through a power LED in accordance with the control signal from the microcomputer;

wherein the microcomputer checks the various kinds of error modes occurring while the burner is driven, and if an error occurs, the microcomputer displays the error mode by flickering the power LED at predetermined intervals.

5. The temperature control apparatus as claimed in claim 1, further comprising:

a temperature display unit for displaying the indoor temperature inputted in real time in accordance with the control signal from the microcomputer; and

an ignition state display unit for displaying an ignition state of the burner through a power LED in accordance with the control signal from the microcomputer;

wherein the microcomputer checks the various kinds of error modes occurring while the burner is driven, and if an error occurs, the microcomputer displays the error mode by characters through the temperature display unit and by flickering the power LED at predetermined intervals.

6. The temperature control apparatus as claimed in claim 1, further comprising a fire sensing unit for sensing an ignition state of the burner by sensing a fire sensitivity in the burner;

wherein the microcomputer checks error modes occurring due to a failure of an initial ignition of the burner and an incomplete combustion of the burner by checking a voltage value inputted from the fire sensing unit.

7. The temperature control apparatus as claimed in claim 6, wherein the microcomputer determines the incomplete combustion if a value of 100ms is inputted three times or more for a predetermined time, and the predetermined time is 5 seconds.

8. The temperature control apparatus as claimed in claim 1, further comprising a thermistor for sensing the indoor temperature changed in real time;

wherein the microcomputer checks an error mode occurring due to disconnection of the thermistor by checking a voltage value inputted from the thermistor.

9. The temperature control apparatus as claimed in claim 1, further comprising a temperature sensing unit for sensing a temperature of the burner that rises according to a combustion operation of the burner;

wherein the microcomputer checks an error mode occurring due to overheat of the burner by checking a voltage value inputted from the temperature sensing unit.

10. A temperature control method for a heater using an encoder switch that controls an indoor temperature by driving a burner in accordance with a change of an indoor temperature and ventilating heated air indoors, the method comprising the steps of:

converting a temperature set by a user into a digital signal of a predetermined number of bits through the encoder switch and inputting the digital set temperature;

sensing the indoor temperature changed in real time through a thermistor and inputting the sensed indoor temperature;

comparing the indoor temperature inputted in real time with the digital set temperature inputted from the encoder switch, and driving the burner if the indoor temperature is lower than the set temperature by less than a predetermined temperature T_1 ;

checking and displaying various kinds of error modes occurring while the burner is driven;

stopping the driving of the burner if the indoor temperature rising according to the driving of the burner is high than the set temperature by more than a predetermined temperature T_2 ; and

maintaining the indoor temperature uniformly with the set temperature by sensing the indoor temperature dropping according to the stop of the driving of the burner, driving the burner if the indoor temperature is lower than the set temperature by less than a predetermined temperature T_1 , and stopping the driving of the burner if the indoor temperature rising according to the driving of the burner is high than the set temperature by more than a predetermined temperature T_2 .

11. The temperature control method as claimed in claim 10, further comprising the step of the microcomputer determining whether an error occurs by checking the digital signal inputted from the encoder switch;

wherein if it is determined that the error occurs, the microcomputer displays "E3" as an error mode of the encoder switch through a temperature display unit and flickers a power LED.

12. The temperature control method as claimed in claim 10, further comprising the step of the microcomputer determining whether an error occurs by checking a voltage value inputted to the thermistor;

wherein if it is determined that the error occurs, the microcomputer displays "E2" as an error mode of the thermistor through a temperature display unit and flickers a power LED.

13. The temperature control method as claimed in claim 10, further comprising the step of the microcomputer determining whether an error occurs by checking a temperature of the burner that rises according to a combustion operation of the burner;

wherein if it is determined that the error occurs, the microcomputer displays "E4" as an error mode occurring due to overheat of the burner through a temperature display unit and flickers a power LED.

14. The temperature control method as claimed in claim 10, further comprising the step of the microcomputer determining whether an error occurs by checking an ignition state of the burner during a driving of the igniter;

wherein if it is determined that the error occurs, the microcomputer displays "E1" as an error mode occurring due to a failure of an initial ignition or an incomplete combustion of the burner through a temperature display unit and flickers a power LED.